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THE BASIS FOR A CROSSLINGUISTIC TYPOLOGY OF MOTION/LOCATION

Part I

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ABSTRACT

A putatively-universal, deep-semantic and -syntactic representation of motion and location is presented. The most characteristic pattern for deriving this representation to the surface in ENGLISH on the one hand and in ATSUGEWI (a HOKAN INDIAN language) on the other are then presented and compared.

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Introduction

The following discussion and another which is to appear in WPLU No. 11 are excerpts from the author's dissertation;* section-references, which pertain to the original work, have been left unchanged in the present reproduction. The two excerpts together present a putatively-universal deep-semantic and -syntactic representation of motion/location, and show the three distinct patterns for deriving this representation which are characteristic of ENGLISH, ATSUGEWI, and SPANISH (amplified by data from RUSSIAN and YIDDISH), set against each other to form the basis for a crosslinguistic typology.

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* Semantic Structures in English and Atsugewi, doctoral dissertation, University of California at Berkeley, Winter 1972. (Available from the author, Linguistics Department/University of California/Berkeley, Calif. 94720 for $6.95.)

0. Sketch of the Surface Structure of the Sentential-Verb

In the derivation of an underlying structure, a constituent which has moved into adjunction with the verb will be termed a *satellite* to the verb; the verb together with all satellites which are present will be said to constitute the *verb-complex*. In English, the surface verb-complex typically consists of the verb alone or of the verb with one satellite (either affixal or independent).* In Atsugewi, by contrast, the surface verb-complex typically consists of the verb (always a bound root) and numerous satellites (always affixal). Typically, in fact, it contains representatives of all the criterial constituents of an underlying structure and can stand alone as a complete sentence in itself. This (polysynthetic) surface-structural entity may thus be appropriately termed the *sentential verb-complex* or, for short, the *sentential-verb*. Although in the course of Part I the syntactic processes by which several types of underlying structure derive into a surface sentential-verb will be detailed, it is perhaps helpful to provide at this point a brief sketch of the sentential-verb's structure.

The surface sentential-verb of Atsugewi is composed of over twenty position-slots. The position-slot occupied by the root has the approximately centralmost location. The position-slot immediately preceding that of the

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* E.g., loosely, the adverbial constituent *at the wrong time* (better: *not ... at the right time*) lexicalizes into the satellite *mis-* of the verb-complex *misfire*, as in *the engine misfired*; and the adverbial constituent *again from the beginning* lexicalizes into the satellite *over* of the verb-complex *start over*, as in *the record started over*.

root is occupied by a member of one of four distinct systems of morphemes: the FIGURE-specifying, the GROUND-specifying, the FROM-clause-replacing, and the BY-clause-replacing prefixes. A train of position-slots immediately following the root is occupied by members of another system of morphemes: the DIRECTIONAL+GROUND-specifying suffixes. The centralmost, prefixal, and suffixal position-slots just indicated comprise the surface-structural core of the sentential-verb and the morphemes which occupy them for the most part represent the semantically most contentful components of the underlying structure.

Surrounding the core of the sentential-verb is an inner periphery of position-slots occupied by morphemes which specify notions of evidence, manner, aspect and the like, such as:

V quickly	almost V	go and V
(hurry up and V)	still V	go V-ing along
V badly	repeatedly V	come V-ing along
(mal-V)	V again, back (re-V)	V in passing
V a little	V awhile	V in accompaniment
V a lot	(stay awhile and V)	with someone
un-V	finish V-ing	V in conjunction with someone
		V for the benefit of someone
		have someone V

Surrounding the inner periphery, the outer periphery of position-slots is occupied by the inflectional morphemes, which specify mode, and person and number (for both subject and object). Any particular set of inflectional morphemes, taken as a whole, specifies a particular constellation of values for the above semantic categories, but there is virtually no one-one correspondence between any single morpheme and any single meaning-component.

With regard to surface-structural well-formedness, in any sentential-verb the core and the outer periphery must be represented, whereas the inner periphery is for the most part only optionally represented. Within the core, the root must be present; a prefix must also be present before most roots -- such roots are the only kind treated in this paper, -- but is impossible before the remaining roots; a suffix must be present after some roots, is optional after others, and is impossible after the rest. It is apparently possible only in principle and not in performance for all twenty-and-some position-slots of the sentential-verb to be filled.

In Part I of this paper, attention is given primarily to the semantic and syntactic underpinnings of the core of the sentential-verb, secondarily to those of the outer periphery, and not at all to those of the inner periphery.

1. The Translatory Situation

A situation which can be considered to consist of, or 'be partitioned into the components of',*

(1) one object moving or located with respect to another object

will be termed a *translatory situation* and symbolized as 's_T'.

The relations which the components of the situation thus partitioned bear to the whole situation will be termed and symbolized as in (2):

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*A more rigorous treatment of the present terms and concepts is given at the beginning of section 5.

(2) the object which is considered as moving or located with respect to another object is (functions as)

the *FIGURE*, or 'F', of the translatory situation;

the object with respect to which a first object is considered as moving or located is (functions as)

the *GROUND*, or 'G', of the translatory situation;

the respect with which one object is considered as moving or located to another object is (functions as)

the *DIRECTIONAL*, or 'D', of the translatory situation;

the moving or located state which one object is considered to be in with respect to another object is (functions as)

the *MOTIVE*, or 'M', of the translatory situation.

In the same way that 'subject' is understood as a relational (not absolute) term naming the grammatical function performed in a sentence by a particular constituent of the sentence, so each of the terms in (2), e.g., 'FIGURE', is to be understood as a relational term naming the semantic function performed in a translatory situation by a particular component of the situation. Additionally in this paper, however, the term 'FIGURE', etc., will be used as a short-hand designation for 'the component which functions as the FIGURE (the FIGURE-functioning component)', etc.

A situation which, as above, has been partitioned into components (and is thereby rendered suitable, as seen next, for specification by an underlying syntactic structure), will be termed a *semantic structure*;

in the present instance the translatory semantic structure may be represented terminologically as in (3a) and symbolically as in (3b):

(3)

(a) translatory situation:

FIGURE + MOTIVE + DIRECTIONAL + GROUND

(b) S_T:

F + M + D + G

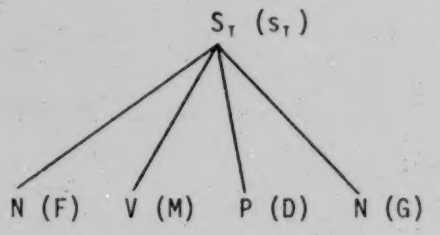
It is now posited that a translatory situation is specified at the underlying level of all languages by a particular syntactic structure, to be termed the *translatory structure* and symbolized as 'S_T'. Each constituent of the translatory structure specifies a particular component of the translatory situation and belongs to a particular grammatical category, as indicated in (4):

(4) the FIGURE-specifying constituent is a *nominal*, or 'N';
the GROUND-specifying constituent is a *nominal*, or 'N';
the DIRECTIONAL-specifying constituent is a *prepositional*, or 'P';
the MOTIVE-specifying constituent is a *verb*, or 'V'.

We note that throughout this paper the grammatic-categorial terms and symbols appearing in (4) are systematically used to label both simple and complex constituents; thus, 'verb/V' is used equally for a simple verb or a verb complex, 'prepositional/P' for a simple preposition or a prepositional complex, and 'nominal/N' for a simple noun or a noun phrase. In addition, 'prepositional/P' is intended to designate a grammatical category neutral to distinctions of position or

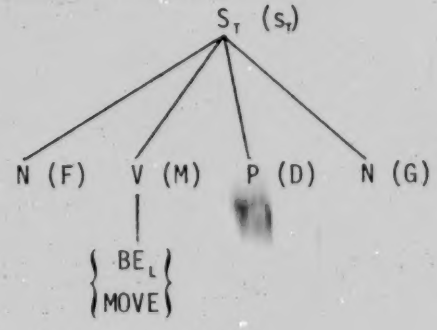
boundedness, hence to label equally a nominal's 'preposition', 'postposition', 'prefix', or 'suffix'. The translatory structure can be represented in its general form as in (5), where the semantic component specified by each syntactic constituent (and the semantic situation specified by the whole syntactic structure) is indicated in parentheses:

(5)



A translatory structure, of which (5) represents the general form, becomes *particularized* when particular expressions are attached to its constituent categorial nodes. It is assumed that, of these latter, the V node must and can only dominate either of two particular verbs -- henceforth to be represented as *MOVE* and BE_L (a mnemonic for 'be-located') -- which specify the two motive states of the translatory situation, so that the already partly particularized translatory structure can be represented as in (6):

(6)



When fully particularized, a translatory structure becomes proper input to a derivation leading to a surface sentence. Before discussing certain typical particularizations and derivations of the S_T in English and Atsugewi, however, the following terms and concepts are introduced:

The term *vadic* (adapted from the Latin word for 'shallows') will be applied to a morpheme which (in a first approximation to be refined later) has an associated meaning, has associated syntactic characteristics, and appears at the surface -- hence has an associated phonologic shape. Such a morpheme first appears either at the underlying level, or is introduced at a mid-derivational level, e.g., by insertion onto an adjunction of other morphemes.

The term *bathic* (adapted from the Greek word for 'depths') will be applied to a morpheme which has an associated meaning, has associated syntactic characteristics, and appears only at underlying and middle levels, never at the surface -- hence has no associated phonologic shape. Such a morpheme disappears at a mid-derivational level, e.g., by participating in an adjunction onto which a vadic morpheme is inserted. The existence, meanings, and syntactic characteristics of bathic morphemes -- just as those of underlying structures -- are inferred from the meanings and syntactic characteristics of vadic morphemes and surface structures; they are then in turn posited, in order to account most systematically for the latter.

Although a particular morpheme can be designated by any arbitrary symbol, a vadic morpheme is most conveniently designated by reference to its associated phonologic shape (and additionally to its associated meaning where there are homophonous forms) and a bathic morpheme,

since it has no associated shape, by reference to its associated meaning. In this paper, accordingly, a vadic morpheme will be represented either by its phonologic shape or its normal spelling -- written in lower case letters -- with subscripts to distinguish homophonous forms, and a bathic morpheme will be represented by a (sometimes devised) English word -- written in small caps -- which is suggestive of its meaning.

The term *open* will be applied to any set of expressions of a particular grammatical category in a language where the membership of the set is indefinitely extendable by recursive grammatical processes. Thus, e.g., the set of vadic noun phrases in English is open because new noun phrases can be formed without limit by nominalization processes.

The term *closed* will be applied to any set of expressions of a particular grammatical category in a language where the membership of the set cannot be extended by recursive grammatical processes but, at most, only by new coinages, borrowings, and the like. Thus, e.g., the set of vadic simple nouns in English is closed.

2. The Translatory Situation in English: the Mm Verb

Providing thereby the basis for a point-by-point comparison with Atsugewi in the following section, we now characterize one of the translatory structure's most typical patterns of particularization and derivation in languages of general familiarity such as English:

(7)

1. -- The expression attached to the first N node of the S_T and specifying the FIGURE of the s_T does not become affected by any subsequent transformations but rather, through the course of derivation, remains at its original location as a distinct element in its original form. Since its form is the same as that in which it is to appear at the surface, this expression as it first appears in the underlying structure is already vadic. The expression is, furthermore, a noun phrase, one drawn from the open set of vadic noun phrases.

2. -- The expression attached to the second N node of the S_T and specifying the GROUND of the s_T has all the characteristics of the FIGURE-specifying expression. That is, it is a vadic noun phrase drawn from the open set of vadic noun phrases which remains throughout the course of derivation at its original location as a distinct element in its original form.

3. -- The expression attached to the P node of the S_T and specifying the DIRECTIONAL of the s_T is in general a complex construction of bathic morphemes which undergoes an elaborate derivation. Construction, morphemes, and derivation will be extensively gone into in later writings but are not further treated in this paper, except for a sketch in the

Appendix. For our present purposes, it is sufficiently detailed to note (1) that the DIRECTIONAL-specifying expression is constructed from closed sets of bathic morphemes, (2) that the expression, through the course of its internal derivation, remains at its original location as a distinct element of the surrounding structure, (3) that its derivation leads to the appearance at the surface of a vadic preposition (in the case of English), and (4) that the set of vadic prepositions is closed.

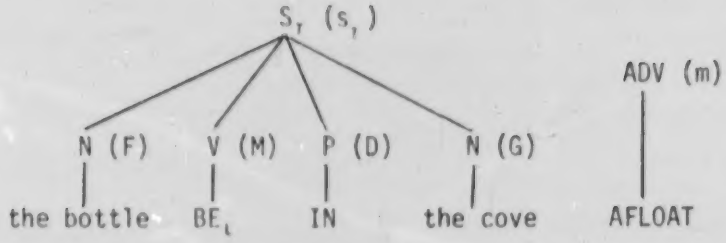
4. -- The expression attached to the V node of the S_T and specifying the MOTIVE of the s_T must, as in all languages, be either of the two bathic verbs *MOVE* and BE_L, which together constitute a closed set. While the attached MOTIVE-specifying verb stays in place, there moves into adjunction with it an expression which arises from an underlying source external to the S_T, and onto this adjunction is then lexically-inserted a vadic verb. While the external source and the moving expression will be gone into extensively in later writings and sketchily in section 9 and the Appendix of this paper, we will, for the illustrations to follow, consider only a simplified form of the moving expression and treat this an as adverb, or 'ADV', which specifies a semantic component of *MANNER*, or 'm'.

To illustrate a translatory structure which becomes particularized and derived in the just-described manner typical of languages like English, we consider first a location example from English. In this example, the MOTIVE of the s_T is specified in the underlying S_T by the bathic verb BE_L, the DIRECTIONAL by a bathic prepositional complex

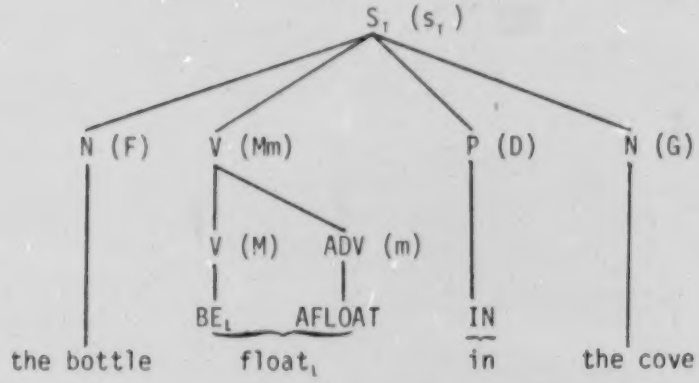
which is here for simplicity represented only as *IN*, and the FIGURE and GROUND by the vadic noun phrases *the bottle* and *the cove*, respectively. The MANNER-specifying expression moving in from an external source is here represented by the bathic adverb *AFLOAT*. The underlying S_1 thus particularized and its subsequent derivation are indicated in phrase-marker form in (8).

(8)

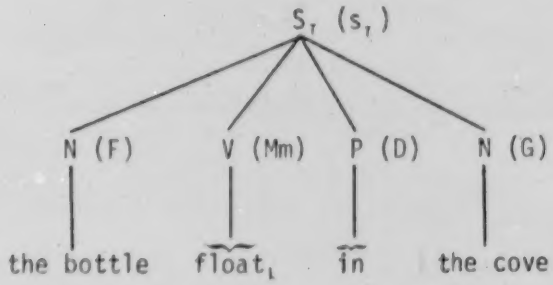
(a)



(b) $\Longrightarrow$



(c) $\Longrightarrow$



i.e., (with tense and aspect)

(d) the bottle was floating in the cove

(9) Comments on the derivation in (8):

1. -- In (8a), the adverb *AFLOAT* is simply shown off to one side of the S_T since no account has yet been given of its proper syntactic status and relationships.

2. -- In (8b), the MANNER-specifying adverb *AFLOAT* has moved into Chomsky-adjunction with the MOTIVE-specifying verb BE_{ℓ} under a new V node marked for specifying the combination of components *MOTIVE + MANNER*, or 'Mm'. Onto the adjunction, the insertion of the vadic verb *float* (marked with the subscript '$_{\ell}$' as a mnemonic for the BE_{ℓ} underlying it) is indicated.

-- The internal derivation of the DIRECTIONAL prepositional complex, here represented by *IN*, into the vadic preposition *in* is indicated.

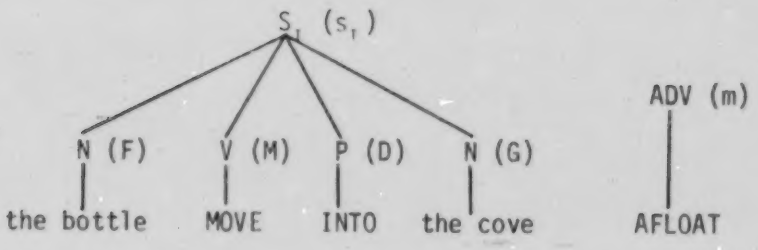
3. -- In (8c), the insertion and the derivation indicated in (8b) have taken place.

* * *

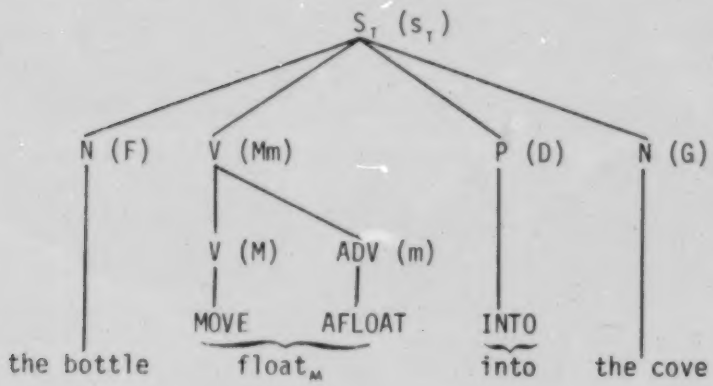
In a motion example from English which we now consider, the MOTIVE of the s_T is specified in the underlying S_T by the bathic verb *MOVE*, the DIRECTIONAL by a bathic prepositional complex here represented simply as *INTO*, and the FIGURE, GROUND, and MANNER by the same expressions as in (8). The underlying S_T thus particularized and its subsequent derivation, which proceeds as for (8), are indicated in (10).

(10)

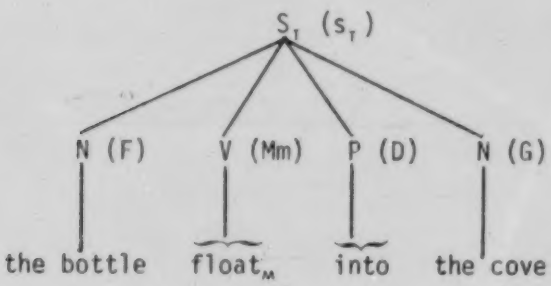
(a)



(b) $\Longrightarrow$



(c) $\Longrightarrow$



i.e., (with tense)

(d) the bottle floated into the cove

3. The Translatory Situation in Atsugewi: the FM Verb (-Root)

3.1 The FM Root Subderivation

In one of the most typical patterns of particularization and derivation for a translatory structure in Atsugewi, the FIGURE-specifying nominal does not, as in English, remain at its original location as a distinct element in its original form, and the MOTIVE-specifying verb does not, as in English, become adjoined by a MANNER-specifying adverb from outside the S_T. Rather, the FIGURAL nominal and its N node move into Chomsky-adjunction with the MOTIVE verb and its V node under a new V node which specifies the combination of components *FIGURE + MOTIVE*, or 'FM', and onto each particular such adjunction is lexically-inserted a vadic morpheme which is keyed (i.e., marked as corresponding) to it. The inserted morpheme remains at the locus of the adjunctional V node through succeeding derivational steps to appear at the surface as the root of the sentential-verb. A root arising in this fashion will be termed a *FIGURE+MOTIVE-specifying root* or, abbreviatedly, an *FM root*. The sequence of transformations which leads to an FM root will be termed the *FM root subderivation*. The set of all FM roots is closed.

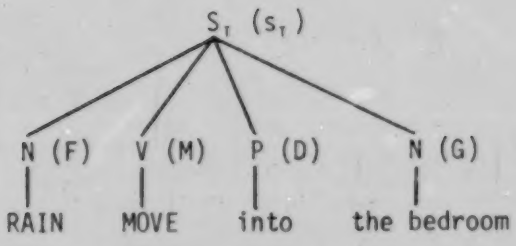
It can be seen from this description of the FM root subderivation that an underlying FIGURE-specifying nominal does not survive to the surface, as in English, and hence is bathic, not vadic. It can be further seen that since those FIGURE-specifying nominals which must be posited to exist at the underlying level are precisely those which lead to the closed set of existing FM roots, they are simple nouns

themselves constituting a closed set and not, as in English, nominalization-formed phrases drawn from the open set. Thus, while the FIGURE-specifying nominal in an underlying S_T of English has been characterized as a *vadic* noun *phrase*, that of Atsugewi must be characterized as a *bathic simple* noun.

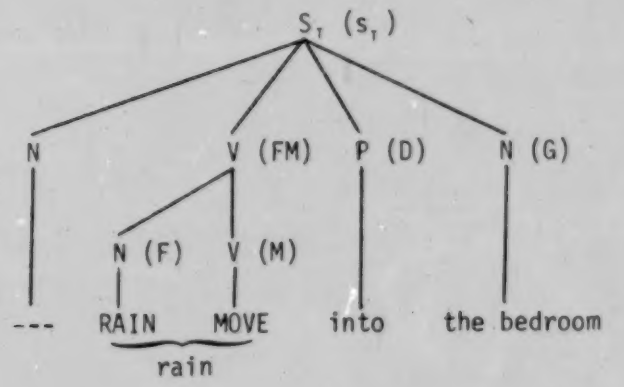
To illustrate the FM root subderivation, we turn for an example first to English, which, though atypically for it, does have several 'FM verbs' which arise by derivational processes homologous with those leading to the Atsugewi FM root. In the underlying translatory structure for this example, the FIGURE-specifying expression is a bathic noun -- here represented by the form *RAIN* -- which has the nominal meaning 'rain' and which, in adjunction with *MOVE*, keys in an insertion by the vadic 'FM verb' *rain*. The particularized underlying structure and its derivation are represented in phrase-marker form in (11):

(11)

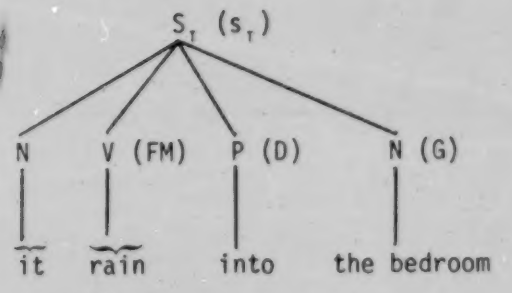
(a)



(b) $\Longrightarrow$



(c) $\Longrightarrow$



i.e., (with tense)

(d) it rained into the bedroom

(12) Comments on the derivation in (11):

1. -- In (11a), the DIRECTIONAL expression is for simplicity already given in the vadic form into which it is ultimately to derive.

2. -- In (11b), the FIGURAL noun *RAIN* and its N node have moved into Chomsky-adjunction with the MOTIVE verb *MOVE* and its V node under a new V node marked for specifying the combination of components FIGURE + MOTIVE or FM. Although the sidedness of the adjoining expression is immaterial in the present derivation, it is shown on the left, closest to its original location. For the phrase-marker representation of an adjunction, the diagrammatic convention is employed here, as already in (8) and (10), of depending the moving node by a slant line and the non-moving node by a vertical line from the new node; the former is of a grammatical category distinct from, while the latter has bequeathed its grammatical category to, the new node.

-- Onto the adjunction, the insertion of the 'FM verb' *rain* is indicated. The diagrammatic convention is employed here, as already in (8) and (10), of indicating lexical-insertion by a horizontal brace. The vacancy left in the subject position by the moving FIGURAL noun is indicated.

3. -- In (11c), the lexical-insertion has taken place.

-- The vacancy in the subject position has been transformationally filled by the expletive formative *it*.

* * *

The 'prose effect' of stages (a), (b), and (c) of the derivation in (11) can be suggestively rendered in a particular quasi-surface-sentence style in English as in (13):

(13)

(a) rain moved into the bedroom (cf., 'the rain came into the bedroom')

(b) (it) rain-moved into the bedroom

(c) it rained into the bedroom

The derived verbal meaning of the lexically-inserted 'FM verb' itself can correspondingly be represented in three equivalent formulations:

(14) rain: (a) 'for rain to move'

(b) 'for (it) to rain-move'

(c) 'for it to rain'

We now return to Atsugewi for an example of the FM root subderivation. In this example, the bathic FIGURAL noun -- here represented by the form *DIRT* -- has the meaning 'dirt-like material' and, in adjunction with *MOVE*, keys in an insertion by the vadic FM root *-qput-*.* The subderivation is represented in phrase-marker form in (15):

*In the Atsugewi forms to be cited in this paper, the only phonologic symbols requiring clarification are:

c representing a morphophoneme whose phonetic realization ranges between [ɬ] and [x̌] (also employed to represent this range in broad-phonetic transcription);

: representing a morphophoneme phonetically realized as the length and lowering of an adjacent vowel;

' representing a morphophoneme phonetically realized as the glottalization of all contiguously following consonants; and

ª representing a morphophoneme phonetically realized either as [ɑ] or as zero in accordance with phonologic rules not gone into here.

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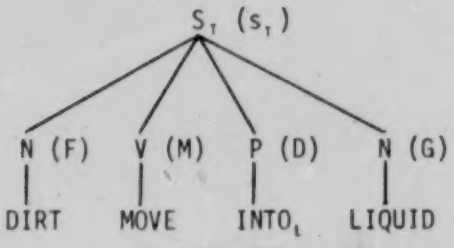
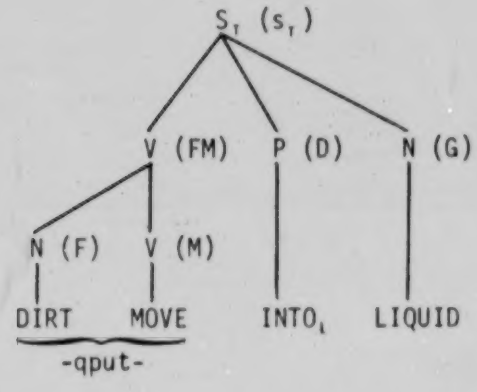
(15)

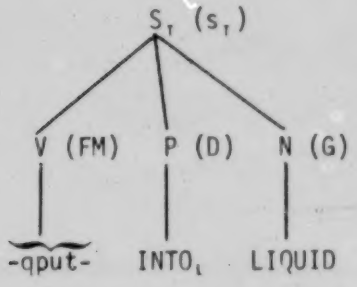
(a)



(b) ⟹



(c) ⟹



(16) Comments on the FM root subderivation in (15):

1. -- In (15a), the bathic expressions given as specifying the DIRECTIONAL and the GROUND are not involved in the present subderivation; they will be treated in the next section.

2. -- In (15b), all those adjunction-pertaining operations which were commented on in the preceding English example have taken place.

-- The lexical insertion onto the adjunction is indicated.

-- No indication of a vacated subject position is given here as was for English (see next).

3. -- In (15c), the lexical-insertion has taken place.

-- Atsugewi does not require the introduction of an expletive formative to fill the subject position vacated by the FIGURAL noun as does English.

-- A viable surface-structure does not yet result at this stage, as did for the English example, because the FM subderivation represented here produces only the root of the sentential-verb.

* * *

Using the form *Dirt* to represent the meaning 'dirt-like material', the prose effect of each of the derivational stages indicated in (15) can be suggestively rendered in English surface-sentence style as in (17):

(17)

(a) Dirt moved into liquid

(b) (it) Dirt-moved into liquid

(c) (it) Dirted into liquid

The derived verbal meaning of the lexically-inserted FM root itself can correspondingly be represented in three equivalent formulations:

(18) -qput-: (a) 'for Dirt to move'
(b) 'for (it) to Dirt-move'
(c) 'for (it) to Dirt'

To afford at this point a more concrete notion of the typical Atsugewi FM root, several such -- among those presented here and in Part III -- are listed in (19). For each instance, there is given the following: (1) the underlying, FIGURE-specifying bathic noun -- represented in small caps both by a suggestive English word and, in parentheses, by a suggestive form which an Atsugewi linguist might employ, (2) the underlying nominal meaning of the FIGURAL noun, (3) the vadic FM root, in its morphophonemic shape, which is keyed in by the FIGURAL noun, and (4) the derived verbal meaning of the root, formulated in the style of (18a):

(19)

DIRT (QPUT)	'dirt-like material'
-qput-	'for dirt-like material to move/be-located'
LIMPNESS (SWAL)	'limp (not stiff/resilient) material'
-swal-	'for limp (not stiff/resilient) material to move/be-located'
ICKINESS (STʔAQʔ)	'runny, "icky" material'
-stʔaqʔ-	'for runny, "icky" material to move/be-located'
PLANE (Tʔ)	'a planar object'
-tʔ-	'for a planar object to move/be-located'

The term *system* is now applied to any closed set of bathic or vadic morphemes where the morphemes specify largely non-overlapping semantic areas and these areas, taken together, fairly completely constitute a particular semantic realm. In other terms it can be said that a system of n members fairly exhaustively partitions a particular semantic realm into n largely non-overlapping semantic areas.

Atsugewi has several such systems, as will be shown later. Of present relevance is the fact that a certain subset of the FIGURE-specifying bathic nouns in Atsugewi, and the subset of vadic FM roots which the nouns key in, are each systems.

The largely non-overlapping semantic areas specified by the members of the bathic noun system are rather inclusive, characterizable, e.g., as 'an inanimate object', 'an animate object', 'contained material', 'a set of objects'. This system of a dozen or so members fairly exhaustively partitions into the same number of areas the whole semantic realm of 'objects and materials'.

Correspondingly, the dozen or so members of the vadic FM root system non-overlappingly specify such inclusive semantic-areas as 'for an inanimate object to move/be-located', etc., and, taken together, fairly exhaustively partition the whole semantic realm of 'moving or located objects and materials'. The roots of this system can be seen to be quite comparable to the perhaps more familiar 'classificatory verbs' of Navaho.

The remainder of Atsugewi's FIGURAL nouns and corresponding FM roots -- some several score, including those listed in (19) -- are not part of any system. The semantic areas which the roots specify lie

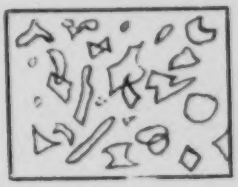
within the semantic realm of 'moving/located objects/materials' but are not contiguous and, as compared with those specified by the systematic roots, are not so inclusive and are in some cases quite idiosyncratic.

Thus, beside a first tier of few systematic roots which provide realm-spanning broad specifications, as suggested by the diagram in (20a), Atsugewi has a second tier of many non-systematic roots which provide realm-dotting narrow specifications, as suggested by the diagram in (20b).

(20)

(a)

(b)



3.2 The DG Suffix Subderivation

In Atsugewi, the DIRECTIONAL- and GROUND-specifying expressions in an underlying S_T do not, as in English, remain at their original locations as distinct elements, and the latter expression does not, as in English, remain in its original form. Rather, by a transformational process to be termed *cojunction*, the expressions, with the categorial nodes to which they are attached, move into a relation of mutual adjunction with each other under a new node of distinct grammatical category. Specifically, the DIRECTIONAL prepositional with its P node and the GROUND nominal with its N node cojoin under a new adverbial, or 'ADV', node which specifies the combination of components *DIRECTIONAL + GROUND*, or 'DG'. Onto each particular such cojunction is then lexically-inserted a vadic morpheme or morpheme-string which is keyed to it. A vadic form thus inserted will be termed a *DIRECTIONAL+GROUND-specifying adverb (-string)* or, abbreviatedly, a *DG adverb (-string)*. The DG adverb (-string) and its ADV node now move into a right-sided Chomsky-adjunction with the previously-formed FM root and its V node under a new V node which may be taken as specifying the whole of the translatory situation itself, or 's_T', since under it are now represented all the components FIGURE, MOTIVE, DIRECTIONAL, and GROUND. The DG adverb (-string) remains at its adjoined location through succeeding derivational steps to appear at the surface immediately after the root as a suffix or suffix-train which will be termed the *DIRECTIONAL+GROUND-specifying suffix (-train)* or, abbreviatedly, the *DG suffix (-train)*. The DG adverb has thus become a suffixal satellite to the root in the

verb-complex dominated by the latest-formed V node. The sequence of transformations which leads to a DG suffix (-train) will be termed the *DG suffix subderivation.* The set of all DG suffixes is closed.

While Atsugewi's underlying DIRECTIONAL-specifying prepositionals are like those of English: i.e., complex constructions of closed sets of bathic morphemes, it can be seen from the description of the DG suffix subderivation that the underlying GROUND-specifying nominals are not like those of English: i.e., vadic noun phrases drawn from the open set, but rather are like Atsugewi's underlying FIGURE-specifying nominals: i.e., bathic simple nouns which, taken together, constitute a closed set.

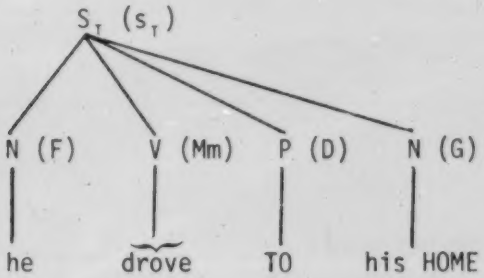
One additional feature of the closed set of DG suffixes in Atsugewi is that it constitutes a system. The several score members of this system approximately exhaustively partition into as many areas the whole semantic realm of 'DIRECTIONAL-paths oriented with respect to GROUND-objects'. So well-formed and exhaustive is the partitioning of this semantic realm that, for any actual translatory situation, the particular DIRECTIONAL-path and GROUND-object nearly always lie clearly within the semantic area specified by one or another DG suffix.

To illustrate the DG suffix subderivation, we turn for an example first to English, which, though atypically for it, does have several 'DG satellites' which arise by derivational processes homologous with those leading to the Atsugewi DG suffix. Thus, an underlying translatory structure wherein the bathic DIRECTIONAL prepositional -- here represented simply as *TO* -- has the meaning 'to' and the bathic GROUND noun -- here represented as *HOME* -- has the meaning 'home' derives into a surface

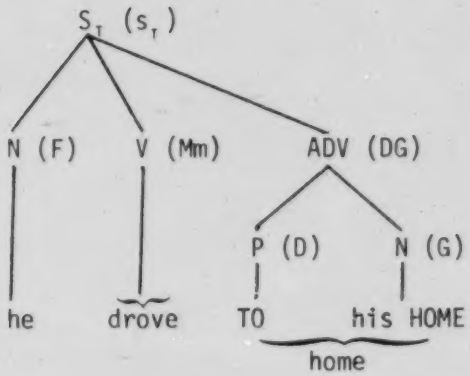
structure containing the vadic 'DG satellite' *home*. The derivation, in phrase-marker form, is represented for a particular example in (21):

(21)

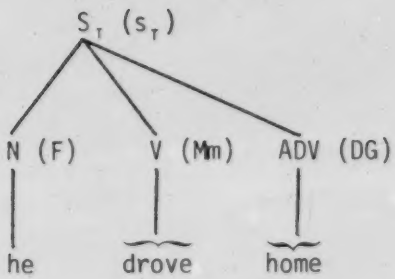
(a)



(b) ⟹

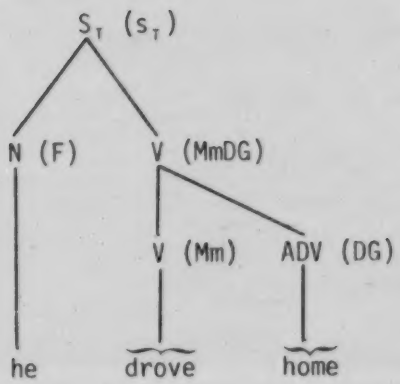


(c) ⟹



(d) (continued on following page)

(d) $\Longrightarrow$



i.e., he drove home

(22) Comments on the derivation in (21):

1. -- The structure in (21a) is actually an 'effective' structure where *he* is the 'AGENT', but is here for simplicity treated as an 'autic' structure (see section 5).

-- In (21a), there has already taken place that transformational process typical of English whereby an external MANNER adverbial -- in this case, one specifying the piloting of a vehicle -- moves into adjunction with the MOTIVE verb -- here, *MOVE* -- and keys in the insertion of a MOTIVE+MANNER verb -- here, *drive*.

2. -- In (21b), the DIRECTIONAL prepositional with its P node and the GROUND nominal with its N node have cojoined under a new ADV node marked for specifying the combination of components *DIRECTIONAL + GROUND*, or 'DG'.

-- For the phrase-marker representation of a cojunction, the diagrammatic convention is here employed of depending both cojoined nodes from the new node by slant lines.

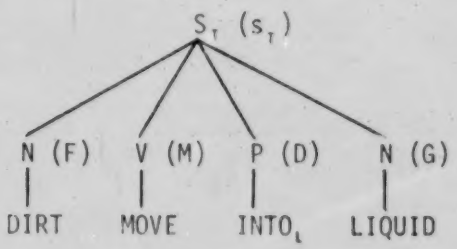
-- The lexical-insertion onto the cojunction is indicated.

3. -- In (21c), the insertion has taken place.

4. -- In (21d), the DG adverb and its ADV node have Chomsky-adjoined to the right of the Mm verb and its V node under a new V node -- marked for specifying the combination of components 'MmDG' -- which now dominates the just-enlarged verb-complex. Thus, in this verb-complex, the DG adverb has become a postposed free-word satellite to the Mm verb in homology with the Atsugewi case where the DG adverb becomes a suffixal satellite to the FM root.

* * *

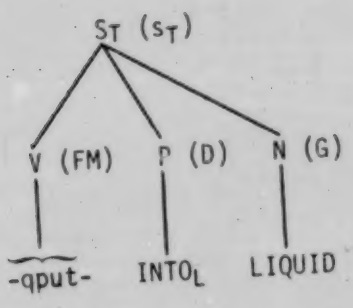
For an Atsugewi example of the DG suffix subderivation, we take the underlying translatory structure previously seen in (15a):



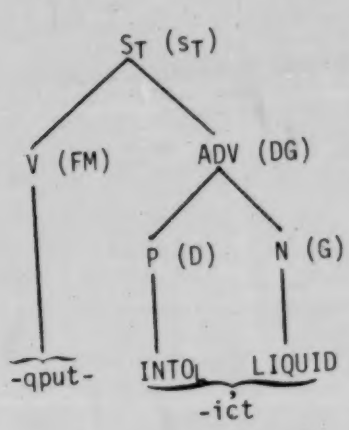
wherein the bathic DIRECTIONAL prepositional is represented as *$INTO_L$* and means 'to a point amidst (liquid)' and the bathic GROUND noun is represented as *LIQUID* and means 'liquid'. After the FM root subderivation, already shown in (15), the DG suffix subderivation ensues, leading to the appearance of the DG suffix *-ic̀t* as represented in (23):

(23)

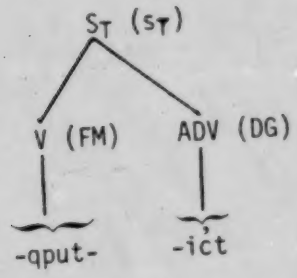
(a) $\Rightarrow \Rightarrow$



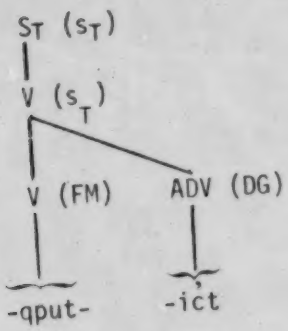
(b) $\Rightarrow$



(c) $\Rightarrow$



(d) $\Rightarrow$



(24) Comments on the DG suffix subderivation in (23):

The stages in this derivation are the same as those for the English example in (21). The comments in (22) also apply here, except that:

1. -- In (23a), it is the FM root subderivation which has already taken place rather than the 'Mm verb subderivation' of the English example.

2. -- In (23d), the new V node formed by the adjunction of the DG adverb with the FM root could have been marked -- paralleling the 'MmDG' of the English example -- for specifying the combination of components 'FMDG', but since this latter makes up the whole of the translatory situation itself, the V has been marked with 's_T'.

-- A grammatical surface structure is not yet present at this stage, there being still two more subderivations necessary.

* * *

In the same style in which the prose effect of (23a) was previously rendered in English as

(25a) (it) Dirted into liquid,

the structure in (23c) can be rendered -- using the devised word *aliquid* for the DG adverb *-ic̀t* -- as

(25b) (it) Dirted aliquid,

and the structure in (23d) can be rendered -- using a hyphen to suggest the affixal boundedness of the surface Atsugewi morphemes -- as

(25c) (it) Dirted-aliquid.

To afford a more concrete notion of the Atsugewi DG suffix system, we now present in (26) a portion of that system -- in particular, those DG suffixes which specify such DIRECTIONAL-paths and GROUND-objects as English would specify by using the preposition *into* plus a noun phrase. The morphophonemic forms of the suffixes appear on the left and their meanings on the right (some of the DG suffixes are obligatorily followed by either of *-im*, 'thither', and *-ik·*, 'hither'; the rest cannot be so followed).

(26)

-ic̓t

'into a liquid'

-cis

'into a fire'

-isp -u· -im/-ik·

'into an aggregate'
[e.g., bushes, a crowd, a rib-cage]

-wam

'down into a gravitic-container'
[e.g., a basket, a cupped hand, a pocket, a depression in the ground, a lake basin]

-wamm

'horizontally into an areal-enclosure'
[e.g., a corral, a field, the area occupied by a pool of water]

-ipsn^{u} -im/-ik·

'(horizontally) into a volumar-enclosure'
[e.g., a house, an oven, a crevice, a deer's stomach]

(continued on following page)

-tip -u· -im/-ik·

'down into a (large) volumar-enclosure in the ground'
[e.g., a cellar, a pit for trapping deer]

-ikn -im/-ik·

'over-the-rim into a volumar-enclosure'
[e.g., a gopher-hole, a mouth]

-iḱsᵘ -im/-ik·

'into a corner'
[e.g., the linear-corner formed by a wall and the floor,
the point-corner formed by two walls and the floor]

-miċ

'down onto-the-surface-of/into-the-substance-of the ground'

-cisᵘ -im/-ik·

'down onto-the-upper-surface-of/into-the-substance-of
a solid (resting on the ground)'
[e.g., the top of a tree stump]

-iḱs

'horizontally onto-the-lateral-surface-of/into-the-substance-of
a solid (resting on the ground)'
[e.g., the side of a tree trunk]

3.3 The F Prefix Subderivation

In order to account for the meaning and form of certain surface structures in Atsugewi and, as will be seen later, in English as well, it is necessary to assume that a component of a semantic situation can be *multiply specified* -- i.e., concurrently specified by more than one expression -- in an underlying syntactic structure, and hence necessary to build in as a formal property of the latter that a constituent of it can be *multiply particularized* -- i.e., concurrently contain more than one expression (where each is attached to its own node and the nodes are of the same grammatical category). The constraint is imposed that, for any multiply particularized constituent, the concurrent expressions must participate in distinct subderivations such that they come to appear (whether or not incorporated in lexically-inserted morphemes) at distinct locations within the surface structure. We will introduce later a diagrammatic convention for representing a multiply particularized constituent and for marking each of the concurrent expressions therein for the particular subderivation in which it is to participate.

Of present relevance is the existence in Atsugewi, in addition to the bathic FIGURE-specifying nouns of the FM root subderivation, of a wholly distinct set of bathic nouns which can also specify the FIGURE, where a member from the former set and a member from the latter set can both appear, concurrently specifying the same FIGURE, in a single underlying structure. Here, the subderivation which ensues for the root-destined bathic noun is the same as described in section 3.1, while that for the new bathic noun is as follows:

The bathic morpheme keys in the insertion of a corresponding vadic morpheme which, together with its N node, then moves into daughter-adjunction to the left of the already-formed S_T-specifying V node, where it remains to appear at the surface as an immediate prefix to the root. A prefix arising thus will be termed a *FIGURE-specifying prefix* or, abbreviatedly, an *F prefix*, and the sequence of transformations which leads to it, the *F prefix subderivation*.

The bathic nouns which participate in the F prefix subderivation and the F prefixes to which they lead each constitute a closed set of some two dozen forms. Each closed set is, moreover, a system which partitions a portion of the semantic realm of 'objects, materials, and energies (e.g., heat, light)' into some two dozen semantic areas, these being wholly distinct from those specified by the bathic nouns (systematic or otherwise) of the FM root subderivation.

A sentential-verb with a FIGURE+MOTIVE-specifying root and a FIGURE-specifying prefix can thus be seen to contain two concurrent, but independent, specifications of the single FIGURAL component of the translatory situation to which the sentential-verb as a whole refers. The F prefix system may also occur in sentential-verbs with roots of the other derivational types treated in this paper. Except when appearing with a MOTIVE+DIRECTIONAL+GROUND-specifying root (section 6), in which case a prefix of this system contributes, within the sentential verb, the sole specification of the FIGURE, the same conditions of concurrent, independent specification as expressed above obtain.

To illustrate the F prefix subderivation we take the same underlying structure as was used in the previous Atsugewi examples, but now

containing an additional FIGURE-specifying bathic noun. This bathic noun -- here represented as *FREEBODY* -- specifies the FIGURE as 'an object or material which is in free-fall or free-flight' and leads to the F prefix *uh-*.

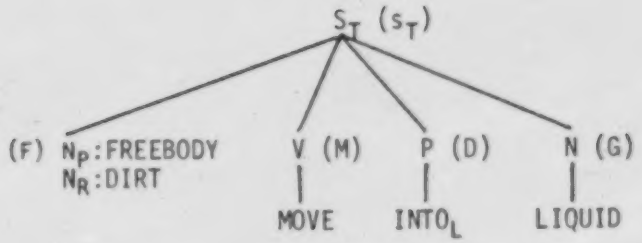
The field-elicited sentential-verb on which the present example is based can be alternatively interpreted as containing not the F prefix given here, but an *FC* prefix (explained in sect. 5.2) of the same phonologic shape:

uh- 'from gravity/the FIGURE's own weight acting on the FIGURE'

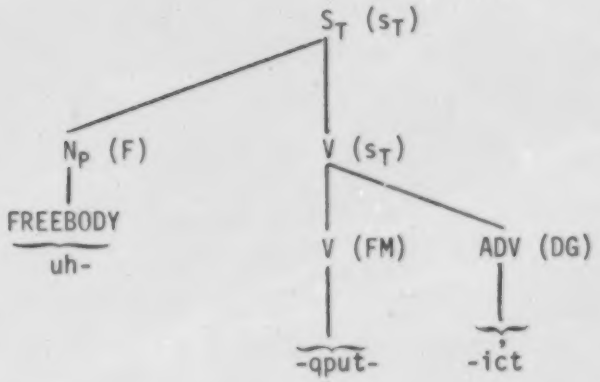
The latter is in fact the preferable interpretation since FM roots inserted onto underlying *MOVE*, rather than underlying BE_L, do not generally take an F prefix. However, the former interpretation is used here in order to facilitate the present step-by-step exposition of the Atsugewi sentential-verb. More suitable examples of sentential-verbs with an F prefix will be found throughout Part III. The F prefix subderivation, then, is presented in (27):

(27)

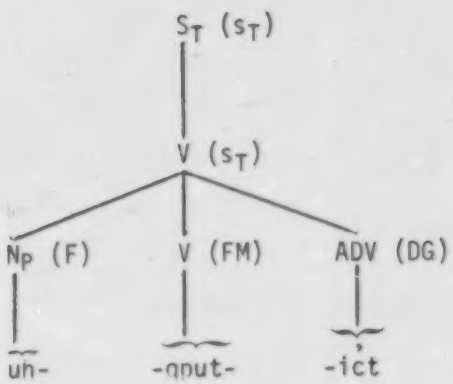
(a)



(b) $\Longrightarrow$



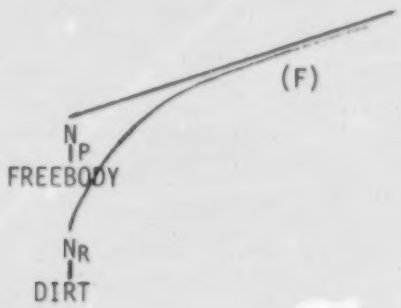
(c) $\Longrightarrow$



(28) Comments on the F prefix subderivation in (27):

1. -- A diagrammatic representation of multiple specification which is in certain respects more consonant with usual phrase-marker conventions might appear as in (i):

(i)



Rejecting this as too cumbersome, we instead represent multiple specification as in (27a), where a single constituent-line is drawn and the concurrent expressions appear to the right of their nodes connected by a colon. The subderivation in which each expression is to participate is indicated by a subscript to its categorial node:

$'_R'$ for a subderivation leading to the root, and

$'_P'$ for a subderivation leading to a prefix.

2. -- In (27b), the FM root and DG suffix subderivations have taken place.

-- The lexical-insertion onto the bathic noun of the F prefix subderivation is indicated.

3. -- In (27c), the lexical-insertion has taken place, and the inserted morpheme has daughter-adjoined to the left of the s_T-specifying V, thus

becoming the second satellite to the FM root. The s_T-specifying V -- the node of the growing verb-complex -- at this stage dominates the core of the still-to-be-completed sentential-verb.

* * *

The prose-effect of the last stage, (27c), of the subderivation can be rendered in English as

(it) freebody-dirted-aliquid

No indication of other members of the F prefix system is given here, because a fairly thorough listing of their forms and meanings is given in section 12 of Part II.*

3.4 The G Prefix Subderivation

Of the bathic nouns treated in the preceding section, where they were discussed as specifying the FIGURE of an s_T, a subset -- those dozen or so which specify 'objects' (rather than 'materials' or 'energies') -- can also specify the GROUND of an s_T. When performing this specificatory function, a bathic noun of the subset appears in an underlying structure in the GROUND-specifying constituent (concurrently with the other expressions there). With the bathic noun thus located, there ensues the same sequence of transformations as constitutes the F prefix subderivation: the bathic morpheme keys in the same vadic morpheme as before, and this morpheme moves into a left-sided daughter-adjunction to appear at the surface as an immediate prefix to the root. A prefix arising in this way will be termed a *GROUND-specifying prefix* or, abbreviatedly, a *G prefix*, and the sequence of transformations leading to it will now be termed the *G prefix subderivation*. The bathic nouns leading to the G prefixes and the G prefixes themselves are each, of course, closed sets, and also constitute systems partitioning the semantic realm of 'objects' into some dozen areas.

The one difference between the FIGURE-specifying prefix system and the GROUND-specifying prefix system is that the latter may appear only in sentential-verbs with an 'MDG' or 'FMDG' root (see sections 6 and 7). A sentential-verb with a G prefix and either of these roots thus contains two concurrent, independent specifications of the GROUND of the translatory situation to which the sentential-verb as a whole refers. Although it is semantically plausible that such a sentential-verb could

contain both a specification of the GROUND with a G prefix and a specification of the FIGURE with an F prefix, such a circumstance is syntactically disallowed, since both prefix types occupy the same surface position-slot. Thus, either one or the other prefix type (if not an *FC* or *BC* prefix, described in sections 5.2 and 5.3) must appear in the position-slot with a corresponding specificatory emphasis on one or another component of the referred-to translatory situation.

The G prefix subderivation is not illustrated here since it is so similar to the F prefix subderivation shown in (27). The G prefixes themselves are indicated in section 12 of Part II and exemplary sentential-verbs containing them appear throughout Part III.

3.5 The Inflectional Subderivation

By way of introduction to the presentation of certain aspects of the Atsugewi inflectional system, some theoretical issues are first discussed.

We theorize that for each language there is a particular closed set of bathic noun phrases which constitutes a system that exhaustively partitions the whole semantic realm of objects into 'personal' categories and which keys in the lexical-insertion of the vadic personal-pronominal forms of that language. E.g., for English, something like the five bathic noun phrases in (29) may well underlie the vadic pronouns in (30) (*I* is written with a lower case letter to indicate that it is vadic):

(29)	(a)	the ENTITY SPEAKING	(30)	(a)	i
	(b)	the ENTITY SPOKEN TO		(b)	you
	(c)	the MALE ENTITY SPOKEN ABOUT		(c)	he
	(d)	the FEMALE ENTITY SPOKEN ABOUT		(d)	she
	(e)	the THING SPOKEN ABOUT		(e)	it

(To represent the head noun of the bathic NP's in (29a-d), the term *ENTITY*, with its non-restrictive suggestion of sentience and selfhood, has been chosen over *PERSON* since in stories, fanciful speech, and the like the object to be specified is not restricted to humanhood.)

In some semantic cases, e.g., where the 'AGENT of an effective situation' (to be discussed in section 5.3) is to be specified, a personal bathic expression containing the term *ENTITY* -- e.g., any of the expressions in (29a-d) -- is deemed sufficient for such specification

as it stands. In other semantic cases, e.g., where the FIGURE of a translatory situation is to be specified, such an expression must, we theorize further, appear together with an additional bathic noun like *BODY* in a larger noun phrase, this last now being deemed sufficient for the specification required. Thus, e.g., the personal expression in (29a) would in the latter case appear in an expanded noun phrase something like

(31) the BODY of the ENTITY SPEAKING.

Lexical insertion for such an expanded noun phrase proceeds in two stages: first, the vadic pronoun which is keyed to the simple personal expression is inserted, as indicated in (32a), resulting in an expression of mixed bathic and vadic forms, as shown in (32b); then, a second vadic pronoun is inserted onto the mixed expression, as indicated in (32c), and this pronoun constitutes the form finally appearing at the surface, as shown in (32d). The second pronoun is marked with the subscript '$_B$' as a mnemonic for the morpheme *BODY* underlying it.

(32) (a) the BODY of $\underbrace{\text{the ENTITY SPEAKING}}_{i}$

(b) the BODY of i

(c) $\underbrace{\text{the BODY of i}}_{B^i}$

(d) $_B{}^i$

In a semantic case similar to the preceding, where the 'EXPERIENCER of an emotive situation' (not discussed in this paper) is to be specified, a personal expression like (29a) might be posited to appear

obligatorily together with an additional bathic noun representable as *MIND* or *FEELINGS* in an expanded noun phrase something like

(33) the MIND of the ENTITY SPEAKING

which would then be deemed sufficient for the specification required. For English, a two-stage lexical-insertion onto such an expression would then give the vadic pronoun ${}_{M}i$.

The rationale for positing such distinct bathic noun phrases as those in (29a), (31), and (33) is to be able to represent at the underlying level such intuitively-evident semantic distinctions as between the 'I' of

(34) I fell down, or I weigh 150 lbs.,

which specifies my body and hence is presumably an instance of the ${}_{B}i$ form deriving from (31), and the 'I' of

(35) I am angry, or I like her,

which specifies my mind or feelings and hence is presumably an instance of the ${}_{M}i$ form deriving from (33). It is noteworthy that apparently for all languages there are no distinctions in surface pronominal form corresponding to such distinctions in underlying form as in (29a), (31), and (33) or to such distinctions in specification as in (34) and (35). Thus, there is, e.g., no phonological distinction in English between ${}_{B}i$ and ${}_{M}i$.

A few remarks are now in order on the two-stage insertional process -- whereby a vadic form is inserted onto an expression already

containing an inserted vadic form -- which was illustrated in (32) for the bathic personal system and which will appear several more times in the succeeding exposition for other areas of syntax. First, it is to be noted that in some areas of syntax, such as that of the personal system, the later-inserted vadic form is always phonologically identical to the earlier (e.g., the $_B\bar{i}$ of (32d) is identical to the $\bar{i}$ of (32b)), whereas in other areas, the later form sometimes differs from the earlier. Secondly, it is an important observation that for still other areas of syntax, it is only the later-inserted vadic form which ever appears at the surface, the earlier form never so doing. Assuming that for such areas there are good syntactic reasons (not discussed here) for considering the earlier form vadic rather than bathic, it thus becomes necessary to extend the previous notion of 'vadic' to comprehend such non-appearing forms. A non-appearing vadic form, like a bathic form, requires special representation; accordingly the convertion will henceforth be employed of placing a line over a (devised) form written in lower-case letters.

In Atsugewi, the bathic personal system consists of ten or so members which distinguish such characteristics in the objects to be specified as person (first, second, third), number (singular, dual, plural), and grouping (inclusive, exclusive). E.g., three particular members of the system may be represented by the bathic noun phrases in (36):

(36) (a) the ENTITY SPEAKING

(b) the ENTITY SPOKEN TO

(c_1) the ENTITY (-IES)
($_2$) the THING(-S) } SPOKEN ABOUT

The category (36c) is here shown in two parts out of semantic and underlying-structural considerations: e.g., if (36c) is to specify the FIGURE of a translatory situation, the expression in ($36c_1$) will have to appear together with the bathic noun *BODY (-IES)* in an expanded noun phrase, while the expression in ($36c_2$) will appear as is; or, if (36c) is to specify the AGENT of an effective situation, only ($36c_1$) and not ($36c_2$) can be used. Conversely, the two parts of (36c) are here shown as a single category out of surface-formal considerations: no portion of the Atsugewi surface pronominal system overtly marks distinctions as to entityhood (or number or, for that matter, gender) among 'SPOKEN ABOUT' or, as they will henceforth be designated, *third-personal* objects.

Now, it is a requirement in Atsugewi that the FIGURE of an S_T -- aside from whatever other bathic expressions may concurrently be specifying it in the underlying translatory structure -- must be specified as to its personal characteristics by a member of the bathic personal system. This member of the system, attached to its N node in the underlying FIGURAL constituent, then undergoes the following *inflectional subderivation*:

(37)

1. -- Onto the FIGURE-specifying personal bathic expression is lexically-inserted a vadic form by the one- [in the case of ($36c_2$)] or two- [in all other cases] stage process. In either case, the vadic form is still non-surface-appearing.
2. -- The vadic form becomes marked for functioning as grammatical subject.

3. -- At the same time as (1), onto the bathic expression specifying the MODE component of the s_T (not previously discussed) is lexically-inserted a non-surface-appearing vadic form.

4. -- The marked personal vadic form and the modal vadic form cojoin.

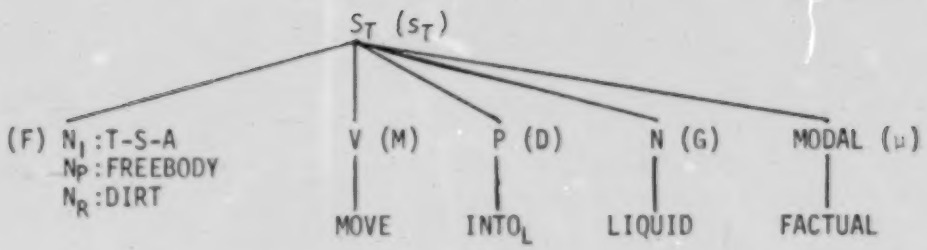
5. -- Onto this cojunction of non-surface-appearing vadic forms is lexically-inserted the particular set of surface-appearing vadic morphemes which is keyed to it.

6. -- The member morphemes of the inserted set move to the appropriate inflectional position-slots which make up the outer periphery of the surface sentential-verb.

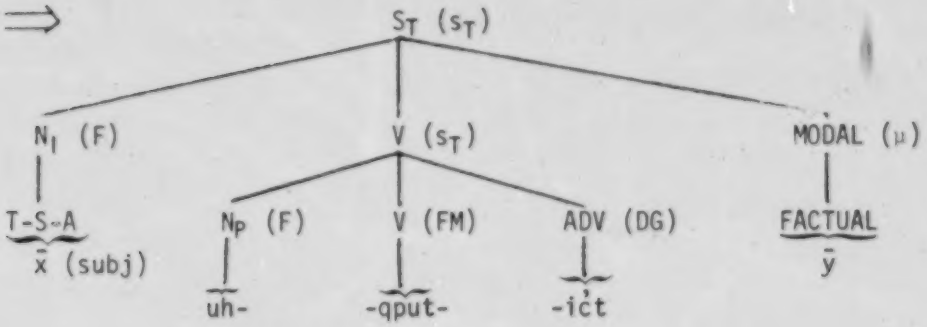
To illustrate the inflectional subderivation we take the same underlying structure as was used in the previous Atsugewi examples, but which now contains an additional constituent, labeled 'MODAL' and specifying the MODE component -- symbolized as 'μ' -- of the s_T, and contains additionally within its FIGURAL constituent an expression of the personal system. For this example, the expression attached to the MODAL node is chosen as *FACTUAL* and the personal expression as *the THING (-S) SPOKEN ABOUT* [$(36c_2)$], abbreviatedly indicated as 'T-S-A'. This particular choice of expression ultimately leads to the vadic inflectional affix-set '- ω- -^{a}, as shown in (38):

(38)

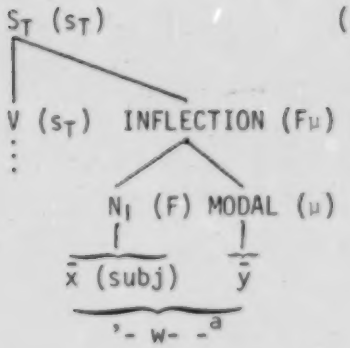
(a)


S_T (s_T)
(F) N_I:T-S-A
N_P:FREEBODY
N_R:DIRT
V (M)
P (D)
N (G)
MODAL (μ)
MOVE
$INTO_L$
LIQUID
FACTUAL

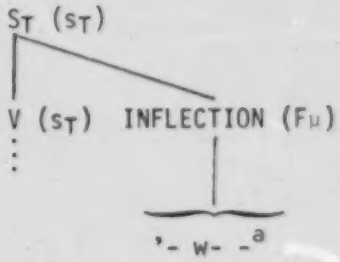
(b) ⟹


S_T (s_T)
N_I (F)
V (s_T)
MODAL (μ)
T-S-A
$\bar{x}$ (subj)
N_P (F)
V (FM)
ADV (DG)
FACTUAL
$\bar{y}$
uh-
-qput-
-ict

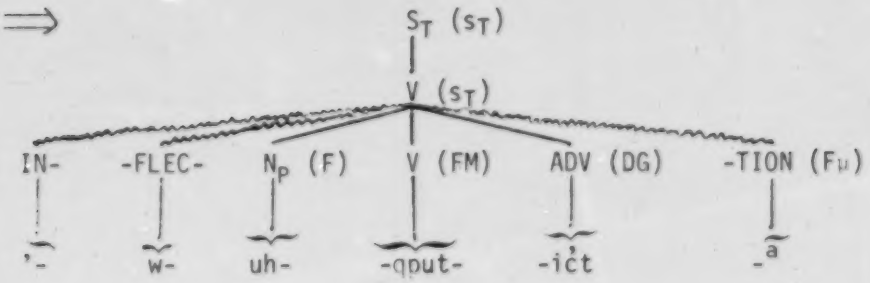
(c) ⟹


S_T (s_T)
V (s_T)
INFLECTION (Fμ)
N_I (F)
MODAL (μ)
$\bar{x}$ (subj)
$\bar{y}$
'- w- -a

(d) ⟹


S_T (s_T)
V (s_T)
INFLECTION (Fμ)
'- w- -a

(e) ⟹


S_T (s_T)
V (s_T)
IN-
-FLEC-
N_P (F)
V (FM)
ADV (DG)
-TION (Fμ)
'-
w-
uh-
-qput-
-ict
-a

(39) Comments on the inflectional subderivation in (38):

1. -- *In (38a), the N node dominating the personal expression is* given the subscript '$_{I}$' to indicate that the expression is to participate in the inflectional subderivation.

2. -- In (38b), the previously treated subderivations have all taken place.

-- The lexical-insertions onto the personal and modal expressions by non-surface-appearing vadic forms, represented as '$\bar{x}$' and '$\bar{y}$', are indicated.

-- The FIGURAL vadic form is marked for functioning as grammatical subject.

3. -- In (38c), the lexical-insertions have taken place.

-- The nodes dominating the personal and modal vadic forms have cojoined under a new node labelled *INFLECTION*.

-- The lexical-insertion onto the cojunction by the surface-appearing vadic morpheme-set keyed to it is indicated.

4. -- In (38d), the lexical insertion has taken place.

5. -- In (38e), the INFLECTION node has moved into daughter-adjunction with the S_T-specifying V node.

-- The member morphemes of the morpheme-set dominated by the INFLECTION node have moved to their respective affixal positions.

-- The subnodes which make up the single, but discontinuous, INFLECTION node are connected to the V node by wavy lines.

* * *

The inflectional subderivation completes the series of subderivations which a translatory structure must undergo. By moving into it as a satellite, the INFLECTION node has rendered the verb-complex fully grown so that the s_T-specifying V node now finally dominates a complete surface sentential-verb.

We now consider the sentential-verb just derived in (38) purely from the surface level, synthesizing its phonologic shape and meaning from those of its component morphemes, in order to introduce the format in which sentential-verbs will be presented throughout Part III:

Indicating the morphophonemic shape of a vadic morpheme on the left and the meaning on the right, the presently-discussed surface sentential-verb contains in its centralmost position-slot the FIGURE+MOVE-specifying root

-qput- 'for dirt-like material to move',

in its first-suffixal position-slot the DIRECTIONAL+GROUND-specifying suffix

-ic̣t 'into liquid',

in its first-prefixal position-slot the FIGURE-specifying prefix

uh- 'an object or material which is in free-fall or free-flight'

and in the position-slots of the outer-periphery the inflectional affix-set

'- w- -^{a} 'third-person [FIGURE, subject], factual [MODE]'

With its component vadic morphemes arrayed in their proper surface-structural adjacent sequencing, the sentential-verb appears as

/ ʾ- w- uh- qput -icʾt -ᵃ/

The sentential-verb in this morphophonemic surface-structural form then passes through the phonological component (which in Atsugewi is quite elaborate and, as can be seen in many of the examples of Part III, often produces phonetic sequences disguisingly divergent from their morphophonemic precursors), coming out with the specifications for its actual pronunciation, which can be represented in broad phonetic transcription in the present case as

[ʾwoqʰputíʾcta]

Taking together the meanings of the vadic morphemes, the full, specific meaning of the whole sentential-verb, or what will be termed its *literal translation*, can be represented as:

'dirt-like material, which was material in free-fall, (and which was the thing spoken about), (in fact) moved into liquid'

In the style introduced previously for rendering the effect of an Atsugewi surface sentential-verb by a devised English construction patterned after, and suggestive of, the sentential-verb, the present example may be represented (using *it* for 'third-person [FIGURE]' and enclosing this form in parentheses to indicate the lack of any simple correspondence to a particular morpheme) by what will be termed its

rendered translation as:

'(it)-freebody-dirted-aliquid'

Finally, we note that a speaker of both languages will often translate an Atsugewi sentential-verb by an English sentence which contains words of very specific reference not implied by the sentential-verb. Such specific reference depicts a specific situation to which the sentential-verb may, however, be used to refer. Any English sentence of this sort will be termed a *casual translation*, and one such for the present Atsugewi example might be:

'the ashes from the fire fell into the soup'

In concluding this section, we give an instance of the appropriate use in Atsugewi of an expanded noun phrase like *the BODY of the ENTITY SPEAKING*: an underlying structure which contains in its FIGURAL constituent this personal expression concurrently with the N_P *FREEBODY* and the N_R *A LINEAR-OBJECT*, and contains in its MOTIVE constituent *MOVE*, in its DIRECTIONAL constituent *ALONG*, and in its GROUND constituent *a SURFACE*, and which has a MANNER constituent containing the adverb *AXIALLY*, derives into a perfectly acceptable surface sentential-verb for which the literal translation may be represented as

'a linear-object, which was an object in free-fall or free-flight, and which was the body of the entity speaking, moved axially along a surface'

and for which one casual translation can be 'I slid (lengthwise) along the ice'.

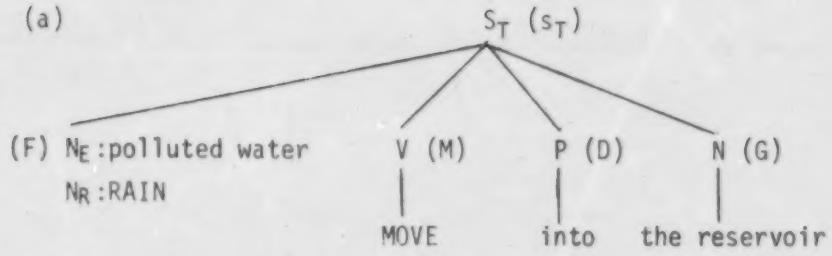
3.6 External Expressions

Thus far it has been seen that FIGURE and GROUND must be specified in an underlying translatory structure in English -- except for the examples cited as atypical for this language -- by open-set vadic noun phrases which survive to the surface as expressions external to the verb-complex, whereas in Atsugewi they need only be specified by closed-set bathic nouns which derive to the surface incorporated within the verb-complex (i.e., the sentential-verb). Since, in the latter case, the memberships of the closed sets -- although large -- are fixed, it is clear that the Atsugewi sentential-verb is ultimately limited in the distinctional delicacy with which it can specify the infinitude of (real, conceived, etc.) circumstances. However, there does additionally exist in Atsugewi the option that, of the FIGURE and GROUND, each -- aside from whatever bathic nouns are already specifying it -- may be concurrently specified by an open-set vadic noun phrase which, homologously with English, survives to the surface as an expression external to the sentential-verb.

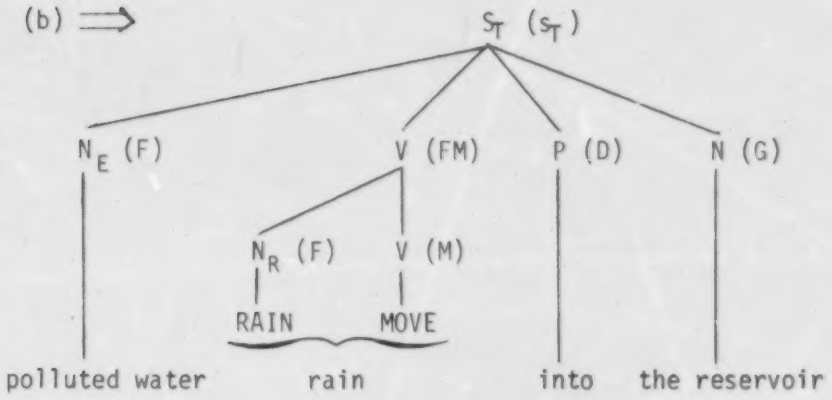
To illustrate the subderivation which leads to an external NP, we turn first to the atypical examples of English. Taking first an example parallel to that in (11), we allow the FIGURE to be specified not only by the bathic noun *RAIN*, which participates in a subderivation leading to the 'FM verb' *rain*, but concurrently by the vadic noun phrase *polluted water*, as in (40):

(40)

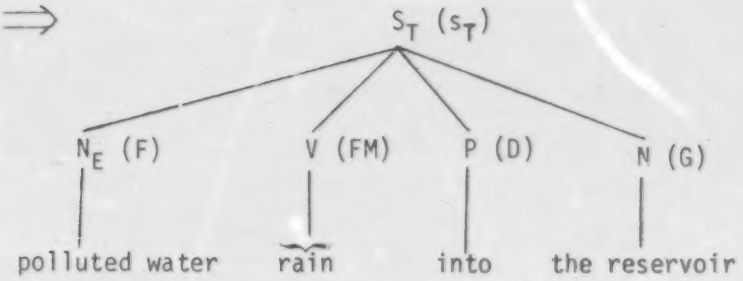
(a)



(b) ⟹



(c) ⟹



i.e., (with iense)

polluted water rained into the reservoir

(41) Comments on the derivation in (40):

1. -- In (40a), the first FIGURAL N has been marked with the subscript '$_E$' to indicate that it is to become an external expression.

-- The second FIGURAL N has been marked with the subscript '$_R$' to indicate that it participates in a subderivation homologous with Atsugewi's root-forming subderivation.

2. -- In (40b) and (40c) are repeated the derivational stages shown in (11b) and (11c).

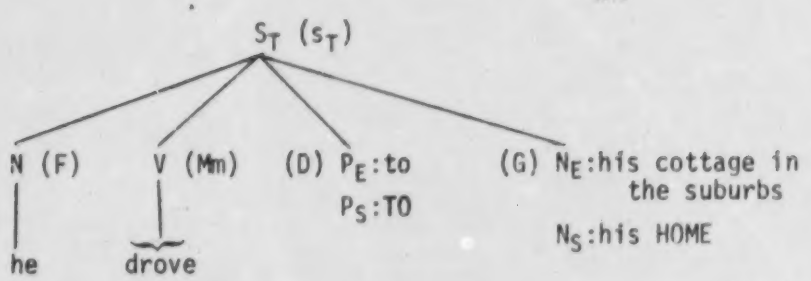
3. -- In (40c), since an external expression now fills the subject position, there is no vacancy for an expletive form (*it*) to fill, as in (11c).

* * *

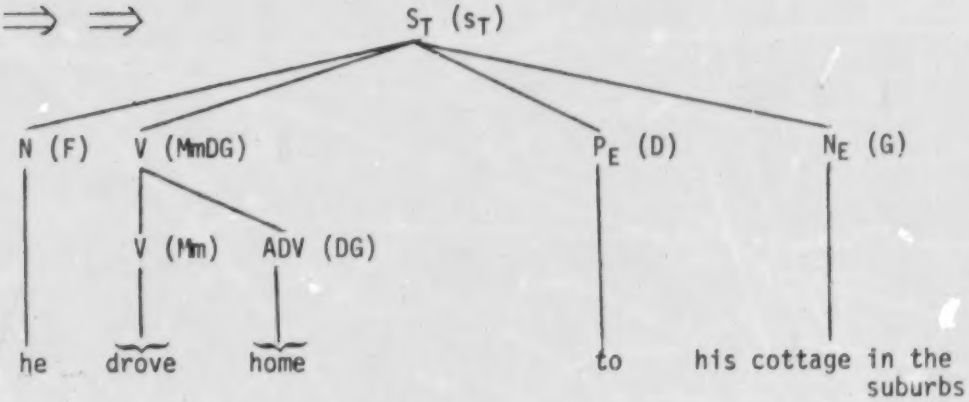
Taking next the English example in (21), we allow the GROUND to be specified not only by the bathic noun phrase *(his) HOME*, but concurrently by the vadic noun phrase *his cottage in the suburbs*. The DIRECTIONAL is correlatively specified here not only by the bathic construction represented as *TO*, but concurrently by the vadic preposition *to*. The two bathic expressions still participate in the subderivation leading to the 'DG satellite' *home*, as in (21), while the vadic expressions remain external to the verb complex, as indicated in (42):

(42)

(a)



(b) ⟹ ⟹



i.e.,

he drove home to his cottage in the suburbs

(43) Comments on the derivation in (42):

1. -- In (42a), the lower of the concurrent P and N nodes have been marked with the subscript '$_S$' to indicate that they participate in a subderivation homologous with Atsugewi's DG suffix-forming subderivation.

2. -- In (42b), there have taken place the derivational steps indicated in (b) through (d) of (21).

* * *

To illustrate for Atsugewi the subderivation leading to external expressions, we take the underlying structure derived in (38) but now amplified as follows:

-- the FIGURE, which was last specified by three concurrent bathic nouns, is now additionally specified by the Atsugewi vadic noun phrase equivalent of *the soot*;

-- the GROUND, which was last specified only by the bathic noun *LIQUID*, is now additionally specified by the Atsugewi vadic noun phrase equivalent of *the creek*;

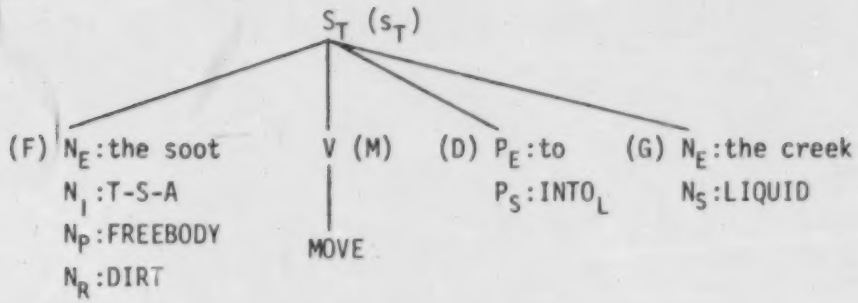
-- and, correlatively with the additional GROUND specification, the DIRECTIONAL, which was last specified only by the bathic construction represented as $INTO_L$, is now additionally specified by the Atsugewi vadic prepositional approximately equivalent to English *to*.

In the derivation of this amplified underlying structure, all the bathic expressions still participate in the subderivations previously described as appropriate to them, thus leading to the formation of the sentential-verb, while the vadic expressions remain external to that

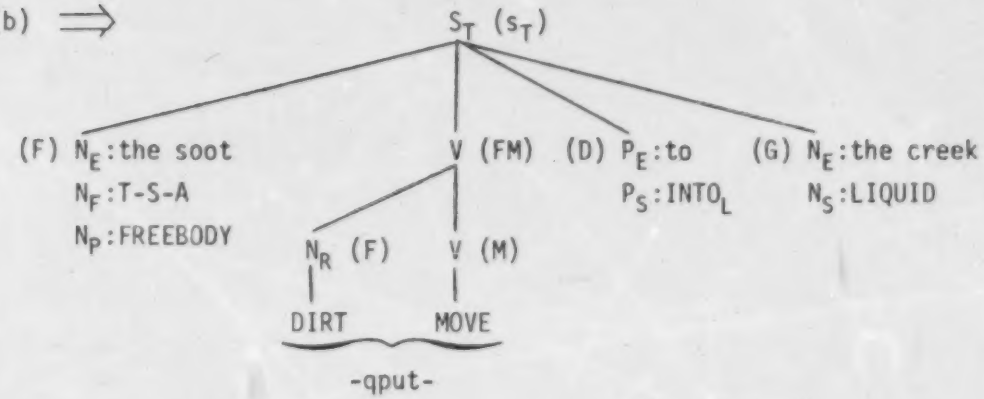
sentential-verb. For clarity in the presentation of the derivation of this underlying structure -- the final development of our running example -- lexical-insertions are not carried out but only indicated: thus, all underlying bathic forms and all transformationally-produced adjunctions and cojunctions can be clearly seen at every stage, as presented in (44):

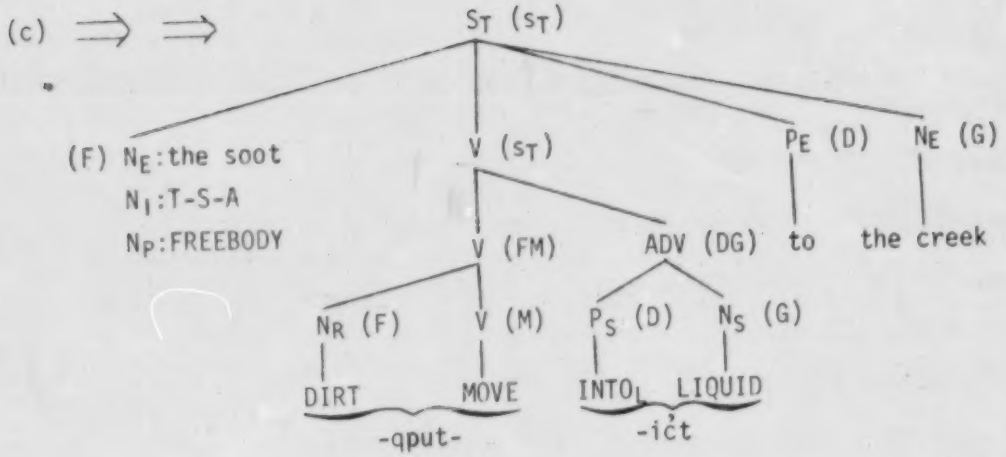
(44)

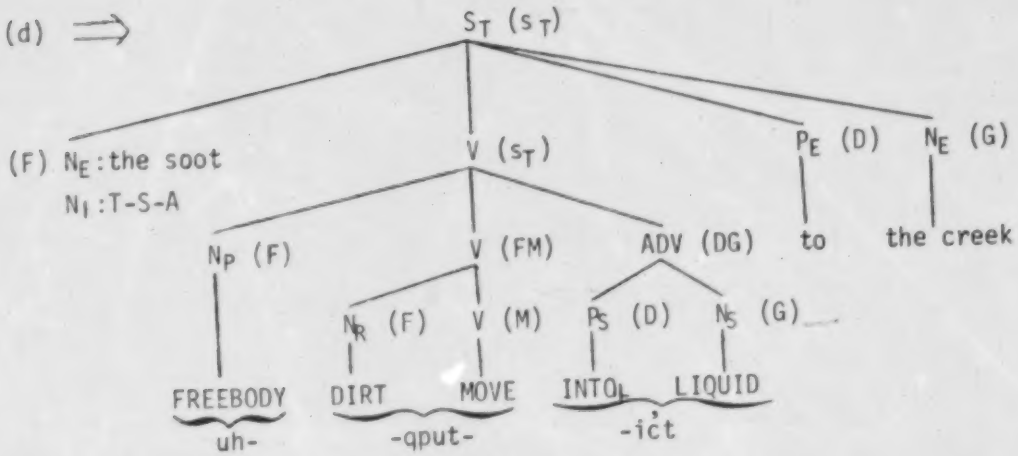
(a)

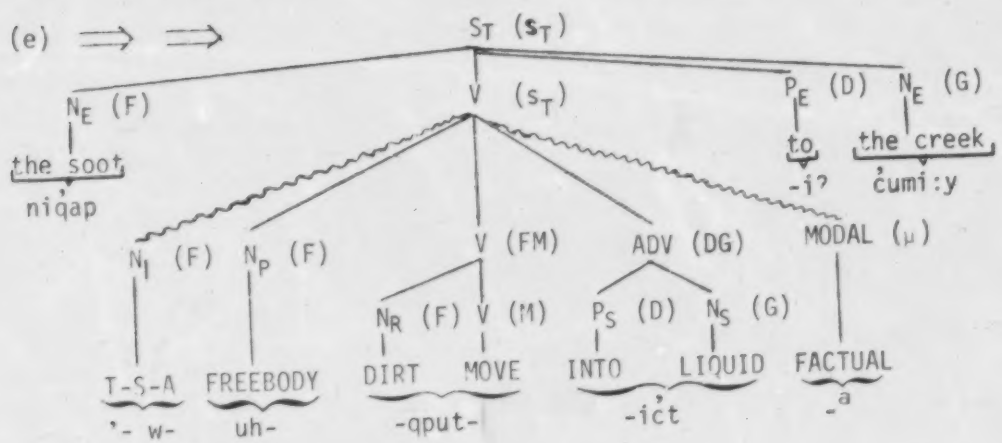


(b) $\Longrightarrow$




(c) ⇒ ⇒
S_T (s_T)
(F) N_E:the soot
N_I:T-S-A
N_P:FREEBODY
V (s_T)
P_E (D)
N_E (G)
V (FM)
ADV (DG)
to
the creek
N_R (F)
V (M)
P_S (D)
N_S (G)
DIRT
MOVE
INTO$_L$
LIQUID
-qput-
-ic't


(d) ⇒
S_T (s_T)
(F) N_E:the soot
N_I:T-S-A
V (s_T)
P_E (D)
N_E (G)
N_P (F)
V (FM)
ADV (DG)
to
the creek
N_R (F)
V (M)
P_S (D)
N_S (G)
FREEBODY
DIRT
MOVE
INTO$_L$
LIQUID
uh-
-qput-
-ic't


(e) ⇒ ⇒
S_T (s_T)
N_E (F)
V (s_T)
P_E (D)
N_E (G)
the soot
niqap
to
-i?
the creek
'cumi:y
N_I (F)
N_P (F)
V (FM)
ADV (DG)
MODAL (μ)
N_R (F)
V (M)
P_S (D)
N_S (G)
T-S-A
FREEBODY
DIRT
MOVE
INTO
LIQUID
FACTUAL
'- w-
uh-
-qput-
-ic't
-a

(45) Comments on the derivation in (44):

1. -- In (44a), the MODE-specifying constituent is omitted for simplicity.

2. -- In (44b), there has taken place the FM root subderivation first shown in (15).

3. -- In (44c), there has additionally taken place the DG suffix subderivation first shown in (23).

4. -- In (44d), there has additionally taken place the F prefix subderivation first shown in (27).

5. -- In (44e), there has additionally taken place the inflectional subderivation first shown in (38). For suggestiveness, the N_I and MODAL nodes are here shown without having been put through their proper cojunctional and insertional steps; accordingly, of course, they are not to be interpreted as immediately dominating the vadic inflectional morphemes shown under them.

6. -- Also in (44e), the vadic expressions, which have been unaffected by the preceding subderivations, have remained to appear externally to the sentential-verb, and are now given in their actual Atsugewi forms.

* * *

The vadic morphemes of the surface structure in (44e) are shown alone, in morphophonemic form, in (46):

(46) /niq̓ap ʾ-w- uh- qput -ic̓t -ᵃ c̓umi:y -iʔ/

Word-order in Atsugewi, though extremely free, has certain preferential tendencies; independent noun phrases are optionally, though preferentially, preceded by the marker *c*. The somewhat preferable form of the sentence in (46) is as follows:

(47) / ʾ-w- uh- qput -ic̓t -ᵃ c niq̓ap c c̓umi:y -iʔ/

In broad phonetic transcription, this sentence can be represented as in (48):

(48) [w̓oqˈputíc̓ta cᵊ niʔᵊq̓áphˑ cᵊ c̓um·é·yiʔ].

The literal translation of the surface structure in (44e) can be represented as:

'dirt-like material, which was material in free-fall, (and which was the thing spoken about), and which was the soot, moved into liquid, which was the creek.'

The rendered translation can be represented as:

'soot (it)-freebody-dirted-aliquid creek-to'.

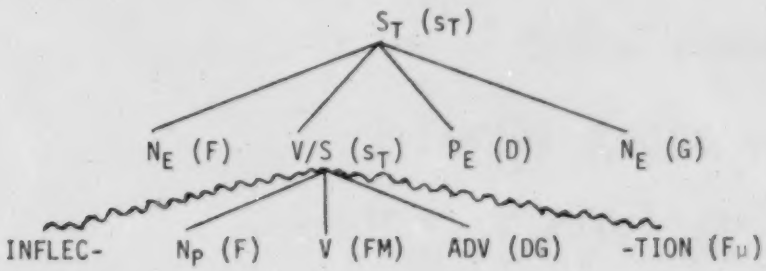
And a casual translation might simply be:

'the soot fell into the creek'.

Though it will not be applied rigorously in this paper, we introduce the notion of a *dual-category node*, to be represented by the

notational convention 'C_1/C_2'. Such a node is asserted to be of one grammatical category as a constituent dominated by a higher node and of another grammatical category as a dominator of its own constituents. Of immediate relevance is the fact that in the structure in (44e) the sentential-verb node functions grammatically as a verb beside the external prepositional and pair of nominals under the highest S_T node, whereas it functions grammatically as a sentence over the root and satellites. Using the new notational convention for a dual-category node, the structure in (44e) can thus be represented as in (49):

(49)

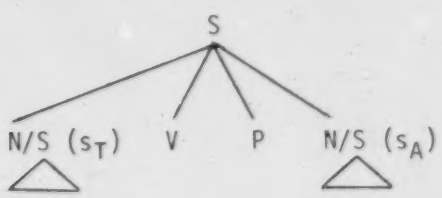


Similarly, a sentential structure functioning as a nominal, as happens twice in (50) (a sentence type to be encountered later):

(50) the aerial('s) coming down off the roof resulted from the branch('s) falling on it

can be represented, using the new notation, as in (51):

(51)



One advantage of the dual-category node written in 'slash-category' notation over, say, two distinct categorial nodes written one under the other is that, for the former, a parenthesized semantic marking need be given only once and clearly indicates that, though there are two grammatical functions, only one semantic component or situation is being specified.

4. Theoretical Notes on the Sentence in English and Atsugewi

4.1 Efficiency and Groundedness of Information

We now undertake to compare an English sentence and an Atsugewi sentence as to the efficiency or redundancy and the 'foregroundedness' or 'backgroundedness' with which their informational content is typically presented.

To bring the comparison into greater relief, we consider sentences which specify a situation much more complex than an s_T, in fact which contain the specifications for no fewer than seven objects with distinct semantic functions in the situation: specifications not only for the FIGURE and GROUND, as already discussed, but also for the INSTRUMENT and AGENT, to be discussed below, as well as for the 'BENEFACTEE', the 'CO-DOER', and the 'AGITANT'. In Atsugewi, as it happens, these seven objects and their functions -- whether or not they are concurrently specified by external expressions -- must be specified within the sentential-verb. In the latter, we note just to provide a little detail, the FIGURE-, GROUND-, and INSTRUMENT-functioning objects are specified as to their semantically more-contentful characteristics, whereas the otherwise-functioning objects are specified at most as to their 'personal' characteristics or, in some cases, merely as to their presence in the situation.

Now, if it is necessary for a speaker to specify the seven objects, with their functions, in some detail -- such as can be accomplished by external expressions-- the English sentence, lacking a sentential-verb,

proves the more efficient instrument than the Atsugewi sentence. The latter, in addition to doing what English does with external expressions, must redundantly re-specify the objects and their functions in its sentential-verb. For example, an English sentence would simply contain seven external NPs and function-indicators (either positional or prepositional) as in (52):

(52) the girl (AGITANT) had the boy (AGENT), together with his friend (CO-DOER), shove the ashes (FIGURE) into the lake (GROUND) with their feet (INSTRUMENT) for her father (BENEFACTEE),

while the informationally-equivalent Atsugewi sentence must contain not only the equivalents of the English NPs and function-indications, as represented in (53):

(53) girl-AGITANT, boy, his friend-togetherwith, ashes, lake-to, their feet-with, her father-for,

but also a sentential-verb which redundantly re-specifies the objects (as to certain of their characteristics) and their functions, as represented in rendered translation in (54):

(54) she-footly-dirted-aliquid-for [someone]-togetherwith [someone]-had-him.

On the other hand, if it is sufficient for a speaker merely to specify the presence in a situation of certain functional relations involving objects, together with certain minimal characteristics of those objects, an Atsugewi sentence containing solely a sentential-verb proves the more efficient instrument than the English sentence. The latter, in order to specify the presence of the functional relations at all, has no recourse but to contain entire external NPs, thereby over-specifying the characteristics of the objects.

In this second circumstance, the object specifications in the Atsugewi sentential-verb differ from those in the external NPs of English along the additional dimension of *groundedness*. We will claim that for the most part information about a component of a situation is *foregrounded*, or called attention to, when specified by an overt external vadic expression and is *backgrounded*, or not called attention to, when specified by an incorporated bathic expression. For example, information about the MANNER component is foregrounded in the adverbial *by plane* in the sentence

(55) he went to New York by plane,

whereas it is backgrounded in the verb *fly* (< GO-BY-PLANE) in the sentence

(56) he flew to New York.

Thus, in the circumstance where an Atsugewi sentence contains only a sentential-verb and the most closely equivalent English sentence must contain external NPs, information about objects is nicely backgrounded

in the former but necessarily foregrounded in the latter; if having the option to background is considered an advantage, Atsugewi clearly has the advantage ov English. For an example, if the Atsugewi sentential-verb derived in (38), here shown in rendered translation:

(57) (it)-freebody-dirted-aliquid,

is compared with the English sentence which is most closely equivalent to it in information-content (and is at the same time colloquial):

(58) the dirt fell into the water,

it can be seen that information about the FIGURE and GROUND is backgrounded in the former in the root and suffix whereas it is foregrounded in the latter in the subject NP and the prepositional-object NP. The English sentence which is most closely equivalent to the Atsugewi sentential-verb in backgroundedness:

(59) it fell in

is, however, inferior to it in information-content, for the sentential-verb additionally specifies that the 'it' is a dirty one and the entrance is a liquid one.

4.2 A Principle of Multiple Specification

We now adduce a certain principle relating to multiple specification:

(60) expressions which concurrently specify a particular component of a situation are each independently accountable to that component for their appropriateness and not to each other;

in other words, their appropriateness depends on language-situation relations, not on intra-language relations.

One possible relation between concurrent nominal expressions: that the vadic NP always specifies a particular instance of a generic category specified by the bathic N, may at first seem to hold, but can on closer inspection be seen not to. Thus, in the previously-used example

(61) he drove home to his cottage in the suburbs,

the external NP, *his cottage in the suburbs* -- or any NP which might appropriately stand in its place -- may seem to specify a particular instance of a generic category specified by the bathic noun *HOME* (here incorporated in the adverbial satellite *home*). That no such membership-relation from vadic NP to bathic N holds can be seen in a sentence like

(62) he walked home to his hotel room,

it being clear that a hotel room is not always an instance of a home (for that matter it can be seen that no membership-relation holds in

the reverse direction either, since a home is not always an instance of a hotel room). Since the satellite and NP of the sentence in (62) are appropriate only if the GROUND object is in fact both a home and a hotel room, it is clear from this example that, as per the principle in (60), the only relevant relation is between the expressions and the situational (actual) object in reference: that the appropriateness of the former is solely dependent on the correctness with which they each, independently, specify the latter.

Similarly for the Atsugewi example derived in (44), here shown in rendered translation:

(63) soot (it)-freebody-dirted-aliquid creek-to,

the GROUND object must be both a liquid and a creek for the presence of *-aliquid* and *creek* each to be appropriate. If in fact the GROUND object is a frozen creek, the suffix *-aliquid* would be inappropriate and the sentence in (63), as a whole, would be unacceptable as a specifier of the situation as a whole. The fact that a creek is not always a liquid, as when it is frozen, again points out the absence of any member-relation from a vadic NP to a concurrent bathic N.

Another possible relation between concurrent nominal expressions: that a particular vadic NP inherently requires pairing with a particular bathic N in a form of grammatical agreement, must also be ruled out. Thus, in Atsugewi, the choice of a particular external FIGURE-specifying NP does not automatically determine the sentential-verb's FM root (which incorporates a bathic FIGURE-specifying N). We can illustrate this fact with the homologous case in Navaho. Here, an external

FIGURAL NP meaning 'the rug' can correctly appear with the classificatory verb which specifies the FIGURE as 'a flexible planar object' if the FIGURAL object is a rug spread out. But the same NP can also correctly appear with the verb which specifies the FIGURE as 'a linear object' if the FIGURAL object is a rug rolled up.*

*In those cases in a language where, e.g., a particular vadic NP *does* inherently require pairing with a particular vadic verb, this is not interpreted as a matter of multiple specification to be represented in the underlying structure. Rather, this is in fact interpreted as a matter of grammatical agreement to be handled in the course of derivation, e.g., by moving a *copy* of the NP or component of the NP -- not an independent bathic N -- into adjunction with the underlying verb, this adjunction to key in the appropriate vadic verb.

It may be non-rigorously noted here that in the English verb phrase the verb and a pronoun are in agreement with the *situational* gender, but with the *grammatical* person, of the subject nominal. Thus, in (i):

(i) my father's only child is cutting himself/herself

the reflexive pronoun is masculine or feminine in agreement with the actual gender of the situational entity specified by the subject nominal, whereas the auxiliary and pronoun are third personal in agreement with the overt (grammatical) person of the subject nominal, despite the fact that this latter can only be specifying the first-personal 'ENTITY SPEAKING'. Because of the requirement for agreement with grammatical person, the sentence in (ii) is unacceptable:

(ii) *my father's only child am cutting myself

(although contrast this requirement against the older English 'our Father, which *art* in heaven,...').

It can be further deduced from the principle in (60) that if a sentence seems odd because it contains several elements which apparently clash in their specifications of a single situational object,

the problem does not lie in any broken intra-sentential co-occurrence relations among the elements but rather in that there exists no familiar object with all the characteristics concurrently specified for it -- and that if one did exist, the sentence would no longer seem odd. For example, if the verb *bend* may be taken to have incorporated in it a bathic noun which specifies the FIGURE [actually, the 'FIGUROID' -- see section 8] as a 'rigid object', then, we claim, the sentence

(64) the handkerchief bent in two

seems odd not because of any broken co-occurrence relation between *handkerchief* and (the bathic noun incorporated in) *bend* but because usually no object has simultaneously the characteristics of 'a handkerchief' and 'a rigid object'. If a handkerchief is first dipped in liquid nitrogen, however, there results an object which indeed has both characteristics and, if predicated of this object, the sentence in (64) no longer seems odd.

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